REMARKS

Applicants' representatives wish to thank Examiner Saunders for taking the time to conduct a telephone interview with Catherine Polizzi and Terri Shieh-Newton on March 14, 2006. Claims 28, 29, 31, 32, 38, 39, 42, and 43 were pending in the present application. By virtue of this response, claims 38 and 39 have been amended and new claims 44-47 added. Support for the new claims can be found on p. 8, lines 18-28. Support for the amendments can be found on pp 8-9, bridging paragraph. Accordingly, claims 28, 29, 31, 32, 38, 39, and 42-47 are currently under consideration.

With respect to claim amendments and cancellation, Applicants have not dedicated or abandoned any unclaimed subject matter and moreover have not acquiesced to any rejections and/or objections made by the Patent Office. Applicants expressly reserve the right to pursue prosecution of any presently excluded subject matter or claim embodiments in one or more future continuation and/or divisional application(s).

Rejections Under 35 U.S.C. § 112, first paragraph

Claims 31 and 42 stand rejected under 35 U.S.C § 112, first paragraph, as allegedly failing to comply with the written description requirement. The Examiner stated that the term "buffer" in claims 31 and 42 was not adequately supported in the specification. Although the Examiner acknowledged that the specification teaches specific example of a buffer (see, e.g., page 13, lines 26-27, "each peptide (40 mg) was dissolved in 0.1 M sodium borate buffer, pH 9.0"), he asserted that there was no written description for a "generic" buffer. Applicants respectfully traverse this rejection.

The written description requirement does not require a patent applicant to provide a verbatim description of all claims in the disclosure. *See Union Oil Co. Of Cal. v. Atl. Richfield Co*, 208 F.3d 989, 997-1001 (Fed. Cir. 2000). Rather, "if a person of ordinary skill in the art would have understood the inventor to have been in possession of the claimed invention at the time of filing, even if every nuance of the claims is not explicitly described in the specification, then the adequate written description requirement is met" *In re Alton,* 76 F.3d 1168, 1175 (Fed. Cir. 1996); *see also*

Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1563 (Fed. Cir. 1991)("The test for sufficiency of support in a patent application is whether the disclosure of the application relied upon 'reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter.'")(citing *Ralston Purina Co. v. Far-Mar-Co, Inc.*, 772 F.2d 1570, 1575 (Fed. Cir. 1985)).

Applicants respectfully note that "an applicant need not describe exactly the subject matter claimed, [instead] the description must clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." *Moba v. Diamond Automation, Inc.*, 325 F.3d 1306 (Fed. Cir. 2003), quoting *Union Oil Co. of Cal. v. Atlantic Richfield*, 208 F.3d 989, 997 (Fed. Cir. 2000); See also *Lampi Corp. v. American Power Products, Inc.*, 56 U.S.P.Q.2d 1445 (Fed. Cir. 2000)("The disclosure as originally filed need not provide *in haec verba* support for the claimed subject matter at issue.").

Applicants also submit that the objective standard for determining compliance with the written description requirement under this statute is whether the specification conveys with reasonable clarity to those skilled in the art that, as of the filing date sought, the applicant was in possession of the invention now claimed (See MPEP 2163.02 citing *Vas-Cath, Inc. v. Mahukar*, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991)). As such, Applicants respectfully submit that the specification does convey to one of skill in the art, as of the filing date, that Applicants were in possession of a compositions of the analog and a buffer.

At the time the present application was filed, buffers suitable for dissolving polypeptides were well known in the art. Given the teaching in the present application, one of ordinary skill in the art will readily recognize that the buffer used in the application is provided as an example, and that any other suitable buffer can be used to substitute the buffer taught therein. Accordingly, Applicants respectfully submit that the specification provides adequate support for "buffer."

The Examiner stated that Applicants have argued that "one of skill in the art" would have recognized that various buffers were "well known in the art" for the purpose of dissolving polypeptides but that these arguments pertain to overcoming an enablement or obviousness rejection rather than a written description requirement. Applicants respectfully disagree with Examiner's

contention. The knowledge of one of skill in the art is pertinent to the determination of written description, as set forth in MPEP 2163.02, as well as the case law cited above.

Further, MPEP 2163.02 states that "[p]ossession may be shown in a variety of ways including description of an actual reduction to practice." The Applicants have reduced the claimed invention to practice in the Examples section. As such, this actual reduction to practice shows possession of the invention and therefore, fulfills the written description requirement.

In addition, Applicants submit that full support in the specification is found for the recitation of "buffer" based on the recent decision in *Capon v. Eshhar* (418 F.3d 1349 (Fed. Cir. 2005)) ("*Capon*"). In *Capon*, the Federal Circuit vacated a decision of the Board of Patent Appeals and Interferences (Interference No. 103,887) that held the claims of both parties to the interference invalid for lack of written description. The claims at issue were directed to chimeric DNA designed to enhance the immune response by providing cells with specific cell-surface antibodies in a form that could penetrate diseased sites (*e.g.*, solid tumors). During the interference proceeding, the parties explained that their chimeric genes were produced by selecting and combining known heavy- and light-chain immune-related DNA segments using known procedures, and provided expert testimony explaining that the principle of forming chimeric genes from selected segments of DNA was known, as well as the methods of identifying, selecting, and combining the desired segments of DNA. However, the Board found both party's claims were broader than the specific examples and held that neither party's specification provided the requisite description of the full scope of the chimeric DNA or encoded proteins by reference to knowledge in the art of the structure, formula, chemical name, or physical properties of the DNA or the proteins.

In *Capon*, the appeal of the Board's decision to the Federal Circuit, the Board's decision was vacated. The Federal Circuit stated that "the law must take cognizance of the scientific facts" (*Capon*, at 1357) and that "the 'written description' requirement states that the patentee must describe the invention; it does not state that every invention must be described in the same way" (*Capon* at 1358). Furthermore, the Federal Circuit stated that "[t]he determination of what is needed to support generic patent claims to biological subject matter depends on a variety of factors,

such as the existing knowledge in the particular field, the extent and content of the prior art, the maturity of the science or technology, the predictability of the aspect at issue, and other considerations appropriate to the subject matter" (*Capon* at 1359).

Applicants have sufficiently described "buffer" in a manner that one of ordinary skill in the art would be able to understand and appreciate that Applicants had possession of this invention as of their filing date. The existing knowledge on the use of buffers is well-established. The use of buffers with a composition is hardly an unpredictable area of technology.

Accordingly, Applicants respectfully request reconsideration and withdrawl of the rejection.

Utility Rejections

Claims 32 and 43 are rejected under 35 U.S.C. § 101 for allegedly lacking substantial utility or a well-established utility. The Examiner stated that although Applicants have described complexes of the immunogen analogs and antibodies as being formed in immunoassays, they have not disclosed a use for the complex *per se*. Applicants respectfully traverse this rejection.

As discussed in the previous response, Applicants submit that the specification discloses a substantial utility for the claimed complex. For example, as the Examiner stated, the specification discloses immunological assays (*i.e.*, formation and detection of immunogen analog-antibody complexes) for the purpose of screening specific immunogen analogs. The immunogen analog-antibody complex disclosed therein serves as an indicator for the ability of the immunogen analog to bind specifically to serum antibodies. Such utility is substantial because immunoassay defines a "real world" context of use in identifying useful immunogen analogs.

Additionally, the utility requirement is satisfied because there is a well-established utility for the claimed complex. *See* MPEP 2107.02.II.B ("An invention has a well-established utility if (i) a person of ordinary skill in the art would immediately appreciate why the invention is useful based on the characteristics of the invention (*e.g.*, properties or applications of a product or process), and (ii) the utility is specific, substantial and credible").

Applicants respectfully submit that a person of ordinary skill in the art would immediately appreciate that the immunogen analog-antibody complex disclosed in the specification serves as an indicator for the ability of the immunogen analog to bind specifically to serum antibodies during screening of useful immunogen analogs. Indeed, the Examiner himself states that the specification discloses immunological assay (*i.e.,* formation and detection of immunogen analog-antibody complexes) "for the purpose of identifying useful immunogen analogs." See page 4, lines 3-4 of the Office Action.

In response, the Examiner maintains the rejection because the "taught assays make further use of the immunogen analogues identified, not of the antigen antibody complexes that are incidentally formed in the assay." Examiner maintains that the Applicants have not disclosed a use for the complexes *per se*. Applicants respectfully disagree with the Examiner's logic. Applicants submit that just because the analogs have a further use does not mean that the currently claimed complex lacks utility. Futher use of the analog downstream is irrelevant to the current claim of the complex. The specification teaches, *inter alia*, that an analog is identified by several characteristics, one of which is its binding to an antibody to which the immunogen binds specifically. The complexes are formed as an intermediary as part of the analog selection process. As such, the complexes have substantial and well-established utility.

Futhermore, the complex recited in claims 32 and 43 are formed as an intermediary when the analogs are used for treating individuals having an antibody-mediated pathology.

Accordingly, Applicants respectfully submit that the complex claimed in claims 32 and 43 does have substantial and well-established utility, and respectfully request that the rejection be withdrawn.

Claims 32 and 43 are also rejected under 35 U.S.C. §112, first paragraph, for allegedly failing to teach how to use the complexes. As discussed above, the specification teaches use of the immunogen analog-antibody complex, for example, in an immunoassay for screening useful immunogen analogs. Applicants therefore respectfully request withdrawal of the rejection.

Obviousness-Type Double Patenting

Claim 28 stands rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claim 1 of U.S. Patent No. 6,060,056. The Examiner asserts that claim 28 is drawn to polypeptide analogs that are a precursor to the conjugate claims in claim 1 of U.S. Patent No. 6,060,056. A terminal disclaimer has been submitted with this response. Accordingly, Applicants submit that the filing of the terminal disclaimer is sufficient to overcome the obviousness-type double patenting rejection and respectfully request that this rejection be withdrawn.

U.S. Patent 5,268,454

Applicants wish to bring to Examiner's attention U.S. Patent 5,268,454 "Composition for Inducing Humoral Anergy to an Immunogen Comprising a T Cell Epitope-Deficient Analog of the Immunogen Conjugated to a Nonimmunogenic Carrier." This patent, which issued from a parent application, is co-owned by the assignee of the instant application.

Rejections Under 35 U.S.C. § 112, second paragraph

Claims 38-40, 42 and 43 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, Examiner stated that claim 38 was indefinite because "2-3" T-cell stimulation index has no units and "2-3" is not defined relative to any basis. Examiner extends the same rationale to reject claims 39-40 and 42-43. Applicants respectfully traverse this rejection.

The specification teaches how one of skill in the art can determine a stimulation index at p. 9, lines 3-15. Lines 9-11 state that "[a]nalogs that fail to induce statistically significant incorporation of thymidine *above background* are deemed to lack T cell epitopes" (emphasis added). Accordingly, one of skill in the art would appreciate that an index of 2 is twice that above background and that an index of 3 is three times that above background and so forth. No units need to be recited in view of this teaching. However, in the interest of expediting prosecution, Applicants

have amended claims 38 and 39 to reflect that the index of 2-3 is "above background." Support for this amendment can be found in the specification on p. 9 line 10. Accordingly, Applicants respecfully request that this rejection be withdrawn.

The Examiner has also stated that in claim 39, the recitation of "in an individual" is unclear because this implies an *in vivo* test, while what the Applicant has disclosed is an *in vitro* stimulation test. Applicants note that claim 39 does not recite "in an individual." However, Applicants will assume that Examiner meant to refer to claim 38 which does recite "in an individual." Applicants have amended the claim to add a comma following "2-3" and to move the phrase "in an individual having antibody-mediated pathology" earlier in the claim to clarify. As such, Applicants submit that claim 38 is not longer indefinite and accordingly, Applicants respectfully request that this rejection be withdrawn.

Rejections Under 35 U.S.C. § 102(e)

Claims 28, 29, 31-32, 38-40, and 42- 43 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Ginsberg et al (5,177,188) in light of the AntiJen data base search. Applicants respectfully traverse this rejection.

During the telephone interview with Examiner Saunders, Applicants' representatives discussed the nature of the Antigen database and how the data contained in the database are selected. The AntiJen Database Homepage (attached as Exhibit A) states that the database contains entries from published experimentally determined data and does not include any data from prediction experiments. The Examiner has entered purportedly B-cell epitopes disclosed in the Dintzis patents into the AntiJen Database T Cell Epitope Search and obtained a result of "Sorry there are no results for your search criteria." The Examiner has interpreted this to mean that there are no T cell epitopes contained within the amino acid sequence he entered into the search. However, this is not the proper conclusion to draw based on a careful reading of how AntiJen Database selects its entries. A negative result from the search does not necessarily mean that there are no T-cell epitopes contained in the string of amino acids entered. Rather, a negative result

merely indicates that there has been no published experimentally determined data for T cell epitopes contained within the string of amino acids entered.

In the case where scientists have published an article on B-cell epitopes and have not done any experimental work to determine if there are any T-cell epitopes contained within that B-cell epitope, the publication will not contain any discussion about whether there are any T-cell epitopes contained in the B-cell epitope. Accordingly, entry of the B-cell epitope sequence into the AntiJen Database T Cell Epitope Search will result in "no results for your search criteria" response. This cannot be construed to mean that there are no T-cell epitopes contained in that B-cell epitope. Rather, it means that no one has published an article disclosing experimentally determined data to determine if any subset of that sequence is a T-cell epitope. Whether an epitope will be a T-cell epitope cannot be determined by mere visual examination of the sequence itself. The determination must be done experimentally. In support of this reasoning, Applicants' representatives have communicated with Dr. Darren Flower, one of the creators of the AntiJen Database, to confirm this interpretation. A copy of the communication with Dr. Flower is also attached to this response as Exhibit B. Accordingly, the 102(e) rejection over Ginsberg is improper because Examiner has not met his burden of showing that the B-cell epitopes disclosed in Ginsberg does not contain T-cell epitopes. As such, Applicants respectfully request that this rejection be withdrawn.

Claims 28, 29, 31-32, 38-40, and 42- 43 are rejected under 35 U.S.C. 102(e) as being allegedly anticipated by Dintzis et al (U.S. Patent Nos. 6,340,460 or 6,022,544) in light of the AntiJen database search. Applicants respectfully traverse this rejection.

For the same reasons explained above, the Examiner cannot rely upon the search results from the AntiJen Database to show that no T-cell epitopes reside within the B-cell epitopes disclosed in the Dintzis patents. Accordingly, the 102(e) rejection is improper because Examiner has not met his burden of showing that the B-cell epitopes disclosed in the Dintzis patents do not contain T-cell epitopes. As such, Applicants respectfully request that this rejection be withdrawn.

CONCLUSION

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no.**252312006002**. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

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Respectfully submitted,

By _____

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